

1 **Claims**

2 What is claimed and desired to be secured by Letters Patent is:

3  
4 1. A highway/railroad crossing detection and warning system comprising:

5  
6 a) a Doppler radar transmitter and receiver system at a  
7 highway/railroad crossing site which detects movement if a  
8 train approaches the crossing;

9  
10 b) a presence detection system at the crossing site which detects  
11 a train at the crossing;

12  
13 c) warning signal devices at the crossing activated by said  
14 Doppler radar transmitter and receiver system or by said  
15 presence detection system for providing warning to a motorist  
16 approaching the crossing.

17  
18 2. The detection and warning system set forth in Claim 1 including a  
19 solar electrical power generation array and storage battery powering  
20 said Doppler radar transmitter and receiver system and said presence  
21 detector system.

- 1           3.     The detection and warning system set forth in Claim 1 wherein the  
2                 presence detection system operates within a limited area close by the  
3                 highway/railroad crossing to determine the presence of a train within  
4                 that area.
- 5
- 6           4.     A highway/railroad crossing detection and warning system comprising:
- 7
- 8                 a)     a Doppler radar transmitter and receiver system positioned at  
9                         a highway/railroad crossing and able to detect a moving train  
10                        at an extended distance from said crossing;
- 11
- 12                b)     a presence detection system also positioned at said  
13                         highway/railroad crossing and able to detect a train in a close  
14                         proximity to said crossing;
- 15
- 16                c)     warning signal devices at said crossing activated by said  
17                         Doppler radar system and by said presence detection system  
18                         and providing warning to motorists approaching said crossing;  
19                         and
- 20
- 21                d)     solar panel arrays and storage batteries powering said Doppler  
22                         radar system, said presence detector system and said warning  
23                         signal devices.

1           5.     A highway/railroad crossing detection and warning system comprising:

2  
3           a)     a Doppler radar transmitter and receiver warning system at a  
4                 highway/railroad crossing site which detects movement of a  
5                 train approaching the crossing, the radar warning system  
6                 comprising two sets of first and second transmitter/receiver  
7                 units respectively positioned adjacent a railroad track and  
8                 located an extended distance from the crossing with one set  
9                 on one side of the crossing, the first transmitter/receiver unit of  
10                each set directed away from the crossing and the second  
11                transmitter/receiver unit of each set directed toward the  
12                crossing;

13  
14          b)     a presence detection system at the crossing site and  
15                 comprising present detection units respectively positioned  
16                 adjacent the railroad track and located a close distance from  
17                 the crossing;

18  
19          c)     warning signal devices at the crossing for warning a motorist  
20                 at the crossing;

21  
22          d)     wireless communication devices transmitting and receiving  
23                 signals between the radar warning system and presence

1 detection warning system to the warning signal devices to  
2 control their activation; and

3  
4 e) solar panel arrays and storage batteries powering all of said  
5 systems and warning signal devices.

6  
7 6. A highway/railroad crossing detection and warning system comprising:

8  
9 a) a Doppler radar transmitter and receiver warning system at a  
10 highway/railroad crossing site which detects movement of a  
11 train approaching the crossing, the radar warning system  
12 comprising two sets of first and second transmitter/receiver  
13 units respectively positioned adjacent a railroad track and  
14 located an extended distance from the crossing, with one set  
15 on one side of the crossing and the other set on another side  
16 of the crossing, the first transmitter/receiver unit of each set  
17 directed away from the crossing and the second  
18 transmitter/receiver unit of each set directed toward the  
19 crossing; and

20  
21 b) warning devices responsive to signals from said Doppler radar  
22 transmitter and receiver warning system.